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Rethinking Mistake in the Age of Algorithms

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-- In our previous note: **Cryptocurrencies and Code before the Courts** ((2019) 30(3) *King's Law Journal* 331 - 337), we discussed the Singapore International Commercial Court (High Court)'s decision in *B2C2 Ltd v Quoine Pte Ltd*. The case subsequently went on appeal, and the Singapore International Commercial Court (Court of Appeal), by a majority, affirmed the decision of the lower court in *Quoine v B2C2* ("Quoine"). The case of *Quoine* represents the first time an apex court in the Commonwealth has ruled on the applicability of contractual principles to situations involving automated trading software. In our recent case note: **Rethinking Mistake in the Age of Algorithms** (forthcoming in the *King's Law Journal*), we examine the decision in *Quoine* and argue that given that finding actual or constructive knowledge of an error necessary to invoke the doctrine of unilateral mistake may well be impossible in cases involving contracts formed by certain types of automated software, the approach set out by Lord Mance, who penned the dissenting judgment, may provide a viable solution.

To provide a brief recount of the facts, central to the dispute were several trades executed between B2C2 Ltd (the "Respondent") and the counterparties on the trading Platform operated by Quoine Pte Ltd (the "Appellant"). These trades were all executed via automated trading algorithms. The counterparties and the Appellant were unaware as to the specific terms on which the contracts were concluded. To place an order on the exchange, the Respondent's algorithm first had to generate an "output price". The generation was done by first obtaining data of the 20 best sell or buy orders from the Platform's order book, being one of the variables for the series of trading strategies contained within the Respondent's algorithm. Without data from the Platform, the Respondent's algorithm would cease to work. Seeking to pre-empt this, Mr Boonen, a director of the Respondent, inserted a "virtual price" of 10 BTC to 1 ETH for sell orders for ETH. The "virtual price" would apply if there was no or insufficient input from the Platform, enabling the Respondent's algorithm to continue running.

As things transpired, this was exactly what happened. Because of an oversight, the Appellant's market-making program could not access external market prices from other exchanges. ETH/BTC orders were not created on the Platform. However, because no error message was generated, this went unnoticed. Trading on the Platform fell to abnormally thin levels. This triggered margin calls on the Counterparties' accounts. Consequently, market orders were placed on their behalf

to buy ETH at the best available market price which happened to be that offered by the Respondent.

Because the Platform was not configured to check whether the Counterparties had sufficient funds in their account, the Counterparties were allowed to trade more BTC than they had in their account, and at abnormally high prices. The Appellant reversed these trades on grounds that they represented an abnormal deviation from the previous BTC/ETH rate. The Respondent sued the Appellant for (a) breach of contract, alleging that they had no right to unilaterally reverse the trades and (b) breach of trust, alleging that the Appellant had unilaterally removed BTC from its account after reversing the trades.

Significantly, the majority defined the software employed by the Respondent as "deterministic". Such software would "always produce precisely the same output given the same input" and did not have the capacity to develop its own responses to varying conditions. Moreover, both the majority, and Lord Mance agreed that the doctrine of unilateral mistake at equity was applicable, however, they differed on the manner of its application. For the majority, the key inquiry where the doctrine of unilateral mistake at equity was concerned was constructive knowledge. And in this case, the relevant knowledge was that of the programmer or person running the program, and it was to be assessed from the point of programming up to the point where the contract was formed. On the other hand, Lord Mance conceptualised unconscionability as the key inquiry where unilateral mistake in equity is concerned, in cases where constructive notice could not be shown. This notion of unconscionability formulated by Lord Mance would encompass the behaviour of the non-mistaken party after the mistake was discovered.

While *Quoine* demonstrates that existing common law principles may be sufficiently flexible to tackle novel situations arising from the application of new technologies, Lord Mance's dissent may chart a new path for the development of the law to deal with cases involving software that can adapt its own responses to varying conditions (i.e. Artificial Intelligence).

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